

## CLAIMS

What is claimed is:

- 1 1. A method for merging partially filled ATM cells, comprising the steps of:  
2 removing a first partially filled ATM cell from an ATM cell stream;  
3 removing a second partially filled ATM cell from the ATM cell stream; and  
4 merging the first partially filled ATM cell and the second partially filled ATM cell  
5 into a third ATM cell.
- 1 2. A method for merging partially filled ATM cells as in claim 1, further comprising  
2 the step of:  
3 inserting the third ATM cell into the ATM cell stream.
- 1 3. A method for merging partially filled ATM cells as in claim 2 wherein said third  
2 ATM cell comprises header information required to reconstruct the partially filled ATM  
3 cells contained within the third ATM cell at a receiving end.
- 1 4. A method for merging partially filled ATM cells as in claim 3 wherein said header  
2 information includes information indicative of the number of partially filled ATM cells  
3 contained within the third ATM cell.
- 1 5. A method for merging partially filled ATM cells as in claim 2 wherein the third  
2 ATM cell is inserted into the ATM cell stream so as to maintain correct cell ordering within  
3 the ATM cell stream.
- 1 6. A method for merging partially filled ATM cells as in claim 5 wherein said steps of  
2 removing a first partially filled ATM cell from an ATM cell stream; removing a second  
3 partially filled ATM cell from the ATM cell stream; and merging the first partially filled  
4 ATM cell and the second partially filled ATM cell into a third ATM cell are carried out in an  
5 ATM switch.

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1 7. A method for merging partially filled ATM cells as in claim 5 wherein said steps of  
2 removing a first partially filled ATM cell from an ATM cell stream; removing a second  
3 partially filled ATM cell from the ATM cell stream; and merging the first partially filled  
4 ATM cell and the second partially filled ATM cell into a third ATM cell are carried out in an  
5 ATM end-system.

1 8. A method for merging partially filled ATM cells as in claim 5 further comprising the  
2 step of transmitting the third ATM cell.

1 9. A data communication device, comprising:  
2 means for identifying partially filled ATM cells within an ATM cell stream  
3 associated with the device; and  
4 means for removing partially filled ATM cells from the ATM cell stream coupled to  
5 the means for identifying.

1 10. A data communication device as in claim 9, further comprising:  
2 means for merging at least two partially filled ATM cells into a merged ATM cell  
3 coupled to the means for removing.

1 11. A data communication device as in claim 10, further comprising:  
2 means for inserting the merged ATM cell into the ATM cell stream coupled to the  
3 means for merging.

1 12. A data communication device as in claim 11 wherein the means for identifying  
2 comprises a lookup table stored in a computer readable format on a computer readable  
3 medium and indexable using logical connection identification information from the ATM  
4 cells within the ATM cell stream.

1 13. A data communication device as in claim 11, further comprising:  
2 means for splitting a merged ATM cell into two or more partially filled ATM cells.

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14. An ATM network, comprising:
- a first node configured to identify partially filled ATM cells within an ATM cell stream passing through the first node and to merge two or more of the partially filled ATM cells in the cell stream into a merged cell; and
  - a second node coupled to the first node and configured to identify a merged ATM cell and to split the merged ATM cell into two or more partially filled ATM cells.

15. An ATM network as in claim 14 wherein the first node is configured such that circuitry in the first node performs the steps of:
- removing a first partially filled ATM cell from the ATM cell stream;
  - removing a second partially filled ATM cell from the ATM cell stream; and
  - merging the first partially filled ATM cell and the second partially filled ATM cell into a third ATM cell.

16. An ATM network as in claim 15 wherein the first node is further configured such that circuitry in the first node performs the further step of:
- inserting the third ATM cell into the ATM cell stream.

17. An ATM network as in claim 16 wherein said third ATM cell comprises header information indicative of the number of partially filled ATM cells contained within the third ATM cell.

18. An ATM network as in claim 16 wherein the third ATM cell is inserted into the ATM cell stream so as to maintain correct cell ordering within the ATM cell stream.

19. An ATM network as in claim 16 wherein the first node is an ATM end-system.

20. An ATM network as in claim 16 wherein the first node is an ATM switch.

add A3  
add A4  
add B4  
add D5